Remarks

The final Office Action mailed June 21, 2006 and the Advisory Action mailed August 10, 2006 has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-3, 10-13, and 20-22 are now pending in this application. Claims 1-3, 10-13, and 20-22 are rejected.

Applicants respectfully submit that a response to the objections to Claims 1-3, 10-13, and 20-22 made in the final Office Action was filed on July 26, 2006.

The rejection of Claims 1, 2, 10-12, and 20-22 under 35 U.S.C. § 102(e) as being anticipated by Popescu (U.S. Patent No. 6,501,828) is respectfully traversed.

Popescu describes a computed tomography apparatus (1). During operation of the computed tomography apparatus, a gantry (2) rotates around an examination subject, a patient P, while a fan-shaped x-ray beam (7) emanates from an x-ray source (3), which penetrates the patient P and is incident on an x-ray detector (4) (column 4, lines 45-50). An adjustment of a plurality of elements (13, 14) of a collimator (11) ensues along a circular path (16) whose curvature center lies in a focus F of the x-ray source (column 5, lines 31-33). A wedge filter (20) that, comparable to the collimator, has two elements (22, 23) that are movable in a direction of double arrows b along a circular path (21) whose curvature center preferably lies in the focus F of the x-ray source (column 6, lines 5-9).

Claim 1 recites an imaging system comprising "a radiation source configured to generate a beam; a collimator configured to collimate the beam to generate a collimated beam; and a detector configured to detect the collimated beam, wherein the collimator is separate from said detector and comprises at least one radio opaque member having a curved contour proportional to a contour of the detector, wherein said collimator includes a first collimator point at a first collimator distance from said radiation source and a second collimator point at a second collimator distance from said radiation source, wherein said detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and wherein a sum of the

first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance."

Popescu does not describe or suggest an imaging system as recited in Claim 1. Specifically, Popescu does not describe or suggest a detector configured to detect the collimated beam, where the collimator is separate from the detector and includes at least one radio opaque member having a curved contour proportional to a contour of the detector, where the collimator includes a first collimator point at a first collimator distance from the radiation source and a second collimator point at a second collimator distance from the radiation source, where the detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and where a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Rather, Popescu describes a plurality of elements of a collimator located along a circular path whose curvature center lies in a focus F of an x-ray source. Moreover, Popescu describes a wedge filter that, comparable to the collimator, has two elements that are movable in a direction of double arrows along a circular path whose curvature center lies in the focus F of the x-ray source. A description of the detector, the elements of the collimator located along a circular path having a curvature center lying in a focus F of an x-ray source, and the wedge filter that has two elements that are movable along a circular path having a curvature center lying in the focus F of the x-ray source does not teach a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Accordingly, Popescu does not describe or suggest a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. For the reasons set forth above, Claim 1 is submitted to be patentable over Popescu.

Claims 2, 10, 21, and 22 depend from independent Claim 1. When the recitations of Claims 2, 10, 21, and 22 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claims 2, 10, 21, and 22 likewise are patentable over Popescu.

Claim 11 recites a computed tomography imaging system comprising "an x-ray source configured to generate a beam; a collimator configured to collimate the x-ray beam to generate a collimated x-ray beam; and a detector configured to detect the collimated x-ray beam, wherein the collimator is separate from said detector and comprises at least one radio opaque member having a curved contour proportional to a contour of the detector, wherein said collimator includes a first collimator point at a first collimator distance from said x-ray source and a second collimator point at a second collimator distance from said x-ray source, wherein said detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and wherein a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance."

Popescu does not describe or suggest a computed tomography imaging system as recited in Claim 11. Specifically, Popescu does not describe or suggest a detector configured to detect the collimated x-ray beam, where the collimator is separate from the detector and includes at least one radio opaque member having a curved contour proportional to a contour of the detector, where the collimator includes a first collimator point at a first collimator distance from the x-ray source and a second collimator point at a second collimator distance from the x-ray source, where the detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and where a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Rather, Popescu describes a plurality of elements of a collimator located along a circular path whose curvature center lies in a focus F of an x-ray source. Moreover, Popescu describes a wedge filter that, comparable to the collimator, has two elements that are movable in a direction of double arrows along a circular path whose curvature center lies in the focus F of the x-ray source. A description of the detector, the elements of the collimator located along a circular path having a curvature center lying in a focus F of an x-ray source, and the wedge filter that has two elements that are movable along a circular path having a curvature center lying in the focus F of the x-ray source does not teach a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator

distance and the second detector distance. Accordingly, Popescu does not describe or suggest a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. For the reasons set forth above, Claim 11 is submitted to be patentable over Popescu.

Claim 12 depends from independent Claim 11. When the recitations of Claim 12 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claim 12 likewise is patentable over Popescu.

Claim 20 recites a method for reducing dosage of radiation incident on a subject, the method comprising "transmitting, from a radiation source, a beam of radiation toward the subject; collimating the beam of radiation before the beam reaches the subject; and detecting, by a detector, the collimated beam of radiation, wherein the collimating is performed by a collimating device that is separate from the detector and includes at least one radio opaque member having a curved contour proportional to a contour of a detector that detects the collimated beam, wherein the collimating device includes a first collimator point at a first collimator distance from the radiation source and a second collimator point at a second collimator distance from the radiation source, wherein the detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and wherein a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance."

Popescu does not describe or suggest a method for reducing dosage of radiation incident on a subject as recited in Claim 20. Specifically, Popescu does not describe or suggest detecting, by a detector, the collimated beam of radiation, where the collimating is performed by a collimating device that is separate from the detector and includes at least one radio opaque member having a curved contour proportional to a contour of a detector that detects the collimated beam, where the collimating device includes a first collimator point at a first collimator distance from the radiation source and a second collimator point at a second collimator distance from the radiation source, where the detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and where a sum of the first

collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Rather, Popescu describes a plurality of elements of a collimator located along a circular path whose curvature center lies in a focus F of an x-ray source. Moreover, Popescu describes a wedge filter that, comparable to the collimator, has two elements that are movable in a direction of double arrows along a circular path whose curvature center lies in the focus F of the x-ray source. A description of the detector, the elements of the collimator located along a circular path having a curvature center lying in a focus F of an x-ray source, and the wedge filter that has two elements that are movable along a circular path having a curvature center lying in the focus F of the x-ray source does not teach a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Accordingly, Popescu does not describe or suggest a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. For the reasons set forth above, Claim 20 is submitted to be patentable over Popescu.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claim 1, 2, 10-12, and 20-22 be withdrawn.

The rejection of Claims 3 and 13 under 35 U.S.C. § 103(a) as being unpatentable over Popescu in view of Okazaki (U.S. Patent No. 5,801,939) is respectfully traversed.

Popescu is described above. Okazaki describes a system including a coarse positioner (101), which is driven by a servo motor or the like, has a large range of movement, a relatively low positioning resolution, and a relatively slow response speed (column 7, lines 27-29). The system includes a fine positioner (102) that is driven to produce movement by a piezoelectric actuator or the like (column 7, lines 32-34). The fine positioner has a limited range of movement but its resolution and response speed are superior to those of the coarse positioner (column 7, lines 32-36).

Claim 3 depends from independent Claim 1, which is recited above. Neither Popescu nor Okazaki, considered alone or in combination, describe or suggest an imaging system as recited in Claim 1. Specifically, neither Popescu nor Okazaki,

considered alone or in combination, describe or suggest a detector configured to detect the collimated beam, where the collimator is separate from the detector and includes at least one radio opaque member having a curved contour proportional to a contour of the detector, where the collimator includes a first collimator point at a first collimator distance from the radiation source and a second collimator point at a second collimator distance from the radiation source, where the detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and where a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Rather, Popescu describes a plurality of elements of a collimator located along a circular path whose curvature center lies in a focus F of an x-ray source. Moreover, Popescu describes a wedge filter that, comparable to the collimator, has two elements that are movable in a direction of double arrows along a circular path whose curvature center lies in the focus F of the x-ray source. Okazaki describes a coarse positioner that has a large range of movement, a relatively low positioning resolution, and a relatively slow response speed. Okazaki also describes a fine positioner that has a limited range of movement, and a superior resolution and response speed to those of the coarse positioner. A description of the detector, the elements of the collimator located along a circular path having a curvature center lying in a focus F of an x-ray source, the wedge filter that has two elements that are movable along a circular path having a curvature center lying in the focus F of the x-ray source, the coarse positioner, and the fine positioner does not teach a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Accordingly, neither Popescu nor Okazaki, considered alone or in combination, describe or suggest a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Hence, for at least the reasons set forth above, Applicants respectfully submit that Claim 1 is patentable over Popescu in view of Okazaki.

When the recitations of Claim 3 are considered in combination with the recitations of Claim 1, Applicants submit that dependent Claim 3 is also patentable over Popescu in view of Okazaki.

Claim 13 depends from independent Claim 11, which is recited above. Neither Popescu nor Okazaki, considered alone or in combination, describe or suggest a computed tomography imaging system as recited in Claim 11. Specifically, neither Popescu nor Okazaki, considered alone or in combination, describe or suggest a detector configured to detect the collimated x-ray beam, where the collimator is separate from the detector and includes at least one radio opaque member having a curved contour proportional to a contour of the detector, where the collimator includes a first collimator point at a first collimator distance from the x-ray source and a second collimator point at a second collimator distance from the x-ray source, where the detector includes a first detector point at a first detector distance from the first collimator point and a second detector point at a second detector distance from the second collimator point, and where a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Rather, Popescu describes a plurality of elements of a collimator located along a circular path whose curvature center lies in a focus F of an x-ray source. Moreover, Popescu describes a wedge filter that, comparable to the collimator, has two elements that are movable in a direction of double arrows along a circular path whose curvature center lies in the focus F of the x-ray source. Okazaki describes a coarse positioner that has a large range of movement, a relatively low positioning resolution, and a relatively slow response speed. Okazaki also describes a fine positioner that has a limited range of movement, and a superior resolution and response speed to those of the coarse positioner. A description of the detector, the elements of the collimator located along a circular path having a curvature center lying in a focus F of an x-ray source, the wedge filter that has two elements that are movable along a circular path having a curvature center lying in the focus F of the x-ray source, the coarse positioner, and the fine positioner does not teach a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Accordingly, neither Popescu nor Okazaki, considered alone or in combination, describe or suggest a sum of the first collimator distance and the first detector distance is equal to a sum of the second collimator distance and the second detector distance. Hence, for at least the reasons set forth above, Applicants respectfully submit that Claim 11 is patentable over Popescu in view of Okazaki.

When the recitations of Claim 13 are considered in combination with the recitations of Claim 11, Applicants submit that dependent Claim 13 is also patentable over Popescu in view of Okazaki.

For at least the reasons set forth above, Applicants respectfully request that the Section 103 rejection of Claims 3 and 13 be withdrawn.

Moreover, Applicants respectfully submit that the Section 103 rejections of Claims 3 and 13 is not a proper rejection. As is well established, obviousness cannot be established by combining the teachings of the cited art to produce the claimed invention, absent some teaching, suggestion, or incentive supporting the combination. Neither Popescu nor Okazaki, considered alone or in combination, describe or suggest the claimed combination. Furthermore, in contrast to the assertion within the Office Action, Applicants respectfully submit that it would not be obvious to one skilled in the art to combine Popescu with Okazaki because there is no motivation to combine the references suggested in the cited art itself.

As the Federal Circuit has recognized, obviousness is not established merely by combining references having different individual elements of pending claims. Ex parte Levengood, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993). MPEP 2143.01. Rather, there must be some suggestion, outside of Applicants' disclosure, in the prior art to combine such references, and a reasonable expectation of success must be both found in the prior art, and not based on Applicants' disclosure. In re Vaeck, 20 U.S.P.Q.2d 1436 (Fed. Cir. 1991). In the present case, neither a suggestion or motivation to combine the prior art disclosures, nor any reasonable expectation of success has been shown.

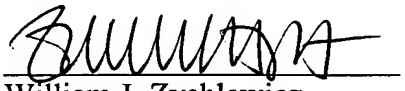
Furthermore, it is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the cited art so that the claimed invention is rendered obvious. Specifically, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the art to deprecate the claimed invention. Further, it is impermissible to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. The present Section 103 rejection is based on a combination

of teachings selected from multiple patents in an attempt to arrive at the claimed invention. Specifically, Popescu teaches a plurality of elements of a collimator located along a circular path whose curvature center lies in a focus F of an x-ray source. Moreover, Popescu teaches a wedge filter that, comparable to the collimator, has two elements that are movable in a direction of double arrows along a circular path whose curvature center lies in the focus F of the x-ray source. Okazaki teaches a coarse positioner that has a large range of movement, a relatively low positioning resolution, and a relatively slow response speed. Okazaki also teaches a fine positioner that has a limited range of movement, and a superior resolution and response speed to those of the coarse positioner. Since there is no teaching nor suggestion in the cited art for the combination, the Section 103 rejection appears to be based on a hindsight reconstruction in which isolated disclosures have been picked and chosen in an attempt to deprecate the present invention. Of course, such a combination is impermissible, and for this reason alone, Applicants request that the Section 103 rejections of Claims 3 and 13 be withdrawn.

For at least the reasons set forth above, Applicants respectfully request that the rejections of Claims 3 and 13 under 35 U.S.C. 103(a) be withdrawn.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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